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Report on global geospatial information management**

Report of the Secretary-General

Summary

In accordance with a request of the Statistical Commission at its forty-first session (see E/2010/24, chap. I.B, decision 41/110), the Secretary-General has the honour to transmit the report on global geospatial information management, which provides an update on recent activities in this field and outlines the findings of the second preparatory meeting on the proposed United Nations Committee of Experts on Global Geospatial Information Management, held in New York in May 2010. Furthermore, the present document reports on the mandate of the Economic and Social Council for the work on global geospatial information management and the subsequent preparation of a draft mission statement and terms of reference for the proposed Committee of Experts. The report also describes planned activities for 2011, in particular the first United Nations Forum on Global Geospatial Information Management, to be held in Seoul in October 2011.

The Commission is requested to take note of the present report.

* E/CN.3/2011/1

** Upon the recommendation of the experts in this field, the terminology regarding this agenda item was recently changed from "global geographic information management" to "global geospatial information management".

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I. Introduction

1. At its forty-first session (see E/2010/24, chap. I.B, decision 41/110), the Statistical Commission requested the Secretary-General to prepare a report, to be submitted to the Economic and Social Council, outlining a global vision for geographic information management, reviewing the existing mechanisms and exploring the possibility of creating a global forum. In addition, the Commission requested the Statistics Division to convene a meeting of an international expert group, consisting of statisticians and geographical information specialists, to address global geographic information management issues. The Commission also requested the Secretariat to report back to the Commission on the work of the expert group and the preparations for a possible global forum.

II. Global geospatial information management

2. The rapid advances in information and geospatial technologies have made geospatial information an invaluable tool in policy planning. In many sectors of society, it is becoming increasingly recognized that the use of geospatial information would enable more effective responses to global humanitarian, environmental and development issues. Many countries are individually building their national geospatial infrastructure and are recognizing it as critically important for socio-economic development. Nevertheless, effective coordination among countries to use such information is still lacking. There is a general recognition of the need for a country-driven global mechanism that can play a leadership role in setting the agenda for the development of global geospatial information and promote its use to address key global challenges; liaise and coordinate among Member States, as well as between Member States and international organizations; and ultimately serve as the apex entity of the global geospatial information community.

III. Global geospatial information management activities

3. Over the past year, the Statistics Division has carried out a number of activities aimed at advancing the implementation of resolution 7 of the eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific, as well as decision 41/110 of the Statistical Commission. These activities included the conduct of a second expert group meeting on global geographic information management, the facilitation of the adoption of an Economic and Social Council decision in this area, the preparation of the mission statement and terms of reference for the proposed United Nations Committee of Experts on Global Geospatial Information Management and the development of a website to serve as a hub for the global geospatial information community.

A. Second preparatory meeting of the proposed United Nations Committee of Experts on Global Geospatial Information Management

4. The Statistics Division, in cooperation with the United Nations Cartographic Section of the Department of Field Support, organized the second preparatory meeting on the proposed United Nations Committee of Experts on Global

Geospatial Information Management from 10 to 11 May 2010 in New York. Experts from 16 countries and 15 regional and international organizations attended the meeting. The discussions focused on the critical issues in geospatial information management and how they could help in addressing the global dimensions of today's emerging challenges, such as poverty, disaster management and climate change. At the meeting, there was a general consensus on the necessity to pursue the discussion of these important issues in a global forum in order to better coordinate the activities of United Nations bodies and other international organizations in this field, exchange practical experiences of geospatial information management among member countries and help countries in need to build their capacities. The announcement of the representative of the Republic of Korea that the first United Nations Forum on Global Geospatial Information Management would be convened in Seoul in 2011 was very much welcome.

B. Economic and Social Council decision

5. In July 2010, the Economic and Social Council decided to request the Secretary-General to submit to the Council at its 2011 substantive session a report on global geographic information management (see decision 2010/240). This decision provided the ongoing initiative on global geospatial information management with an official intergovernmental mandate.

C. Mission statement

6. One of the central ideas in the ongoing discussion on global geospatial information management issues is the creation of a platform for continued exchange in the form of a United Nations expert body. The participants of the second preparatory meeting on the proposed United Nations Committee of Experts on Global Geospatial Information Management had therefore deemed it necessary to develop clear terms of reference, including a definition of the mission and objectives of the proposed Committee. Japan, as one of the co-chairs of the second preparatory meeting, was entrusted with leading a drafting committee. The resulting document proposes a global architecture consisting of a two-tiered structure: an expert committee and a global forum. The expert committee would meet more frequently, possibly annually, and be charged with the identification and coordination of specific areas of work and the preparation of policy papers for presentation at the global forum. The global forum would provide a venue for a more general discussion of geospatial information issues and should involve senior national policy decision makers, possibly at the ministerial level. The full text of the document is contained in the annex to the present report. During the discussions on the mission and scope of this global architecture, the experts recommended the use of the term "geospatial" information, instead of "geographic" information, because it is more comprehensive and now more commonly used.

D. Inter-agency mechanism

7. While the global geospatial information management initiative is primarily an intergovernmental mechanism, the proposed Committee of Experts needs the support of an appropriate United Nations inter-agency mechanism. In this regard, the Under-Secretary-General for Economic and Social Affairs will be sending a letter to members of the United Nations System Chief Executives Board for Coordination and to the United Nations regional commissions, inviting them to give their views on the initiative and bring critical issues of concern to the United Nations family to the attention of Member States for their discussion and decision.

E. Global geospatial information management website

8. In order to support the ongoing debate among Member States, the Statistics Division has developed a website dedicated to the global geospatial information management initiative (http://unstats.un.org/unsd/ggim). The website contains background information on the mandate of global geospatial information management activities and on related events and partners. The mission statement and the terms of reference of the proposed United Nations Committee of Experts on Global Geospatial Information Management are available on this website. Furthermore, the site also provides information and news about major events organized by the Statistics Division and others related to geographic information systems (GIS), cartography and the standardization of geographical names.

IV. Future activities

A. Third preparatory meeting of the proposed United Nations Committee of Experts on Global Geospatial Information Management

9. The Statistics Division has initiated the preparatory activities for the organization of the third preparatory meeting on the proposed United Nations Committee of Experts on Global Geospatial Information Management, to review and finalize the report to be submitted to the Economic and Social Council and discuss the future of global geospatial information management activities, including the global forum. The meeting is scheduled to take place in New York from 4 to 6 April 2011.

B. Report of the Economic and Social Council

10. Pursuant to Economic and Social Council decision 2010/240, the Division has initiated the preparation of a report that outlines a global vision for geospatial information management, to be submitted by the Secretary-General to the Council at its 2011 substantive session. It is hoped that, on the basis of that report, the Council will provide the formal mandate for future work in this area.

C. Global forum

11. The first United Nations Forum on Global Geospatial Information Management will take place in Seoul from 25 to 28 October 2011. It is meant to be an open forum that will bring together all Member States and interested stakeholders to address current critical issues in the area of geospatial information management and adopt a set of concrete policy proposals and actions for the future.

D. Technical cooperation

12. The Statistics Division is actively seeking funds to enable it to start work with countries that require assistance in their country activities on geospatial information. This will build on the work already done in relation to 2010 population census geocoding activities. The United Nations will work actively with development partners to render the necessary assistance. In this regard, a proposal has been put forward to the Development Account for a modest grant to initiate country-level activities and seek co-financing.

V. Conclusion

13. For the future development of the geospatial information field, one of the key challenges is better integration with statistical information. As the Commission already concluded last year, the swift development of information technology provides considerable opportunities in that context. It is therefore imperative that the professional statistical community, in partnership with relevant national authorities in the geoinformation field, remain fully informed and engaged in the further development of national geospatial information capacities.

14. The Commission is invited to take note of the progress in the work related to the establishment of the United Nations Committee of Experts on Global Geospatial Information Management and give guidance on the way forward.

Annex

Draft mission statement and terms of reference (as at 28 September 2010) of the proposed United Nations Committee of Experts on Global Geospatial Information Management

Global challenges and geospatial information

1. Many of the current problems facing the world, such as climate change, natural disasters, environmental quality, pandemics, wars, famines, population displacement, migration and economic crises, are cross-border challenges of a global nature that require global, regional and national policy responses. It has long been recognized by policymakers that high-quality information and analyses are prerequisites for good policymaking. In this respect, recent advances in technology have seen the emergence of location-based information (geospatial information) as a major contributor to better policy formulation, given its ability to integrate both quantitative and qualitative information across sectors and present this information to decision makers in innovative formats.

2. An increasing amount of geospatial data is being created and captured by using high-resolution satellite imagery and other data collection techniques, and is quickly processed on a variety of levels, from the local to the global, for further analysis and for the expansion of the knowledge base. Such an explosion of rich geospatial information has created a new business domain of location-based services, such as those focused on navigation, and contributed to economic growth, as well as to the competitive development of related technologies. Rapid advances in geospatial information technology are further enabling better access and integration of location-based information, expanding the traditional role of maps to include new tools for information analysis and management. Much of the digital data and information currently available online is location-referenced. This presents both new opportunities and challenges for the effective use of geospatial information to help address problems of major global significance.

3. Geospatial information must be managed and shared in a variety of ways and on a range of levels, from the local to the national to the regional to the global, and this has to be a complementary process. At the local level, most fundamental geospatial data, including land parcels for land administration, buildings and road networks, are developed and maintained by different bodies, often independently and with little coordination among these bodies or with national mapping programmes. At the country level, the role of Government is shifting from being a primary supplier of authoritative geospatial data to being an acquirer of data for national programmes, serving in a coordinating and regulatory role and facilitating partnerships among the producers and consumers of geospatial information. At the regional and global levels, many international initiatives dealing with specialized aspects of geospatial information have been created.

4. Most countries are using geospatial information as an important element in the formation of national policies, but effective coordination among countries in the use of geospatial information is the exception rather than the rule. Regional efforts, like those of the European Union to create the Infrastructure for Spatial Information in Europe (INSPIRE) initiative and those of the Permanent Committee on Spatial Data Infrastructure of the Americas and the Permanent Committee on GIS Infrastructure

for Asia and the Pacific to create regional spatial data infrastructures, are an indication of the value of such cooperation. Increased international cooperation in this field could help to develop the full potential of geospatial information and the underlying technologies, and make them more useful and accessible to a wide range of users and policymakers.

5. There are both technical and policy challenges involved, such as access to and sharing of data, interoperability, standards, privacy, confidentiality, national security, licensing of data sets, public-private partnerships and the respective roles of public participation, the private sector and Governments in the creation and use of geospatial information management strategies. Consideration of all of these issues would benefit from comparative perspectives on a global scale. Some progress has been made in this respect, such as the work of the Group on Earth Observations to create the Global Earth Observation System of Systems, but much remains to be done. It is suggested that the establishment of a new global mechanism, linking all regional cartographic conferences together and serving as the apex entity of the global geospatial information community, would be one way to move things ahead.

Need for a global consultation mechanism

6. States Members of the United Nations were aware as early as 1948 of the potential benefits of a coordinated programme of international cartography, and they have recognized the importance of maps to global activities;[a] however, the subsequent institutional approach was regional in scope. Under the auspices of the United Nations, regional cartographic conferences were established, which currently cover only two regions — the United Nations Regional Cartographic Conference for Asia and the Pacific and the United Nations Regional Cartographic Conference for the Americas.[b] The United Nations Regional Cartographic Conference for Africa ceased to meet in the 1990s.[c]

7. Moreover, United Nations activities on the substantive level have thus far focused on cartography and the standardization of geographical names, which are only two of the many specialized fields involved in the inception and implementation of a modern-day geospatial information infrastructure. Since the enactment of Economic and Social Council resolutions 131 (VI) and 476 (XV), technical innovations have transformed the traditional use of maps and allowed the underlying geography to be harnessed for multiple uses. Cartography and geographical names are very important, and the work undertaken under the auspices of the United Nations is well recognized, but the range of geospatial information required to cope with global challenges typically goes far beyond what is, for example, reflected on a map or contained in a gazetteer. Geospatial information infrastructures incorporate varied types of information linked to location, such as demographic, health, environmental, topographic, cadastral and economic information, to name just a few. These data are not only disseminated through the

[a] See Economic and Social Council resolution 131 (VI) of 19 February 1948 on the coordination of cartographic services of specialized agencies and international organizations.

[b] See Economic and Social Council resolution 476 (XV) of 6 April 1953 on international cooperation on cartography and subsequent resolutions.

[c] Spatial data infrastructure development issues in Africa are currently discussed in the Committee on Development Information, Science and Technology (formerly the Committee on Development Information), which was created by the Economic Commission for Africa.

media, but also provided as information services through the Internet. Therefore, expanding the traditional role of cartography and aligning it with the management of geospatial information and spatial data infrastructure is much needed in order to cater to a largely extended base of users of information at all levels. There is a general recognition that there is a move away from existing classical mapping approaches towards the production of spatial data and information as useful commodities. It should be noted, however, that cartographic visualizations will remain important, or become increasingly so, in order to quickly and intuitively convey the results of analyses of integrated geospatial information to decision makers.

8. While, for example, the Global Observation System of Systems was established as a forum for Member States to discuss earth observations, there is currently no global consultation mechanism through which Member States can come together and discuss the broad spectrum of critical issues with respect to geospatial information management. A growing number of countries are building their spatial data infrastructures and enhancing the management of their geospatial information, so there are considerable benefits to be derived from effective knowledge management at a transnational level. Such benefits have been demonstrated through regional efforts, including the Infrastructure for Spatial Information in Europe initiative, the Permanent Committee on Spatial Data Infrastructure of the Americas and the Permanent Committee on GIS Infrastructure for Asia and the Pacific. There is an urgent need, however, for a vehicle that can provide coordination among Member States, and between Member States and international organizations, on work associated with the management of global geospatial information.

9. National Governments and the international community, as represented in United Nations bodies, are the primary users of geospatial information for the purpose of policy decision-making. The Economic and Social Council is the central intergovernmental forum for the discussion of international economic and social issues and the formulation of policy recommendations addressed to Member States and the United Nations system. The Economic and Social Council is thus the appropriate forum to oversee a consultative process to effectively coordinate ongoing work in the wide field of geospatial information, help develop common approaches and bring geospatial information to bear on global policy issues. The flexible and extensive consultative structure of the Council also allows the effective harnessing of the important contributions of non-State actors, such as international and national non-governmental organizations, the private sector and a growing volunteer community. These partnerships are of growing importance in the development and effective use of geospatial information.

10. Establishing a more formal framework would enable Member States to develop effective strategies for building and strengthening capacity for the management of geospatial information, especially in developing countries. Such a global mechanism, under the auspices of the United Nations, could furthermore raise the awareness of politicians and decision makers of the scope and significance of geospatial information and its powerful analytical potential when effectively integrated with statistical and other information systems, and help address cross-border challenges of a global nature that are facing the world today.

11. A new global architecture could consist of a two-tiered structure: an expert committee and a United Nations forum. The expert committee would meet more

frequently, possibly annually, and be charged with the identification and coordination of specific areas of work and the preparation of policy papers for presentation to the global forum. The forum would provide a venue for a more involved discussion of geospatial information issues and should involve senior national policy decision makers. The two-tier consultation mechanism would bring all Member States and stakeholders together and address current critical issues, resulting in concrete policy proposals and actions.

Functions of the Committee of Experts

12. The basic functions of the Committee of Experts would be:

(a) To play a leadership role in setting the agenda for the management of global geospatial information and to promote its development to address key global challenges, such as poverty reduction, sustainable development, climate change, early warning, disaster management, peace and security, environmental quality and economic crises;

(b) To provide a vehicle for liaison and coordination among Member States, and between Member States and international organizations, including the United Nations Regional Cartographic Conferences and their regional Permanent Committees on Spatial Data Infrastructures, on work associated with the management of global geospatial information and to demonstrate the benefits to be derived from such coordination;

(c) To propose actions to guide the development of principles, policies, methods and mechanisms for the standardization, interoperability and sharing of geospatial data and services, and to help countries develop the full potential of geospatial information and the underlying technology and make it accessible to and effectively used by a broad range of users;

(d) To compile and disseminate best practices of national, regional and international bodies dealing with legal instruments, management models and technical standards for the building of spatial data infrastructures as one of the vital elements of information management, and to facilitate the dissemination of these practices and experiences to Member States of the United Nations;

(e) To provide a platform to develop effective strategies on how to build and strengthen capacity for the management of geospatial information, especially in developing countries;

(f) To support the organization of the United Nations Forum on Global Geospatial Information Management, develop its agenda and facilitate its arrangements;

(g) To implement the tasks assigned as a result of the resolutions adopted at the United Nations Forum on Global Geospatial Information Management.